

### Abstract

The invention relates to a continuous process for separating a mixture of hydrocarbons which has been obtained by extractive distillation of a C<sub>4</sub> fraction (C<sub>4</sub>) using a selective solvent (LM) 5 and comprises the hydrocarbons from the C<sub>4</sub> fraction (C<sub>4</sub>) which are more readily soluble in the selective solvent (LM) than are the butanes and the butenes. The mixture is fed into a first distillation column (K I) in which it is separated into a stream (K I-K) which is taken off at the top and comprises 1,3-butadiene, propyne, possibly further low boilers and possibly water and a bottom stream (K I-S) comprising 1,3-butadiene, 1,2-butadiene, acetylenes and possibly further 10 high boilers, with the proportion of 1,3-butadiene in the bottom stream (K I-S) from the distillation column (K I) being regulated in such a way that it is at least sufficiently high to dilute the acetylenes to outside the range in which there is a risk of spontaneous decomposition. The stream (K I-K) taken off from the top of the first distillation column (K I) is fed to a second distillation 15 column (K II) and is separated into a stream (K II-K) which is taken off at the top and comprises propyne, possibly further low boilers and possibly water and a bottom stream (K II-S) comprising pure 1,3-butadiene in the second distillation column (K II).

20 (Figure 1)